November 24, 2008

M E M O R A N D U M

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FROM: Steve Ogle, P.E.
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SUBJECT: Staff Analysis for Draft Wastewater Reuse Permit LA-000211-02 (Municipal Wastewater)
SunCor Idaho, Inc., Avimor Subdivison No. 1

1. PURPOSE

The purpose of this memorandum is to satisfy the requirements of the *Rules for the Reclamation and Reuse of Municipal and Industrial Wastewater* (Rules), IDAPA 58.01.17.400.04, for issuing wastewater reuse permits (WRPs). This memorandum addresses draft WRP No. LA-000211-02, for the municipal wastewater treatment and reuse system for Avimor Subdivison No. 1 (Avimor), owned and operated by SunCor Idaho, Inc. (SunCor). The Avimor treatment and reuse system is currently permitted under the terms of WRP No. LA-000211-01, which will be replaced by the draft permit upon final issuance.

2. SUMMARY OF EVENTS

The Department of Environmental Quality (DEQ) issued Permit No. LA-000211-01 to SunCor on August 1, 2007. The permit is for operation of the private, municipal wastewater treatment and reuse system owned and operated by SunCor, for Avimor Subdivision No. 1, located north of Eagle, Idaho.

The purpose of the draft WRP is to update Permit No. LA-000211-01 to reflect the current status and direction of the facility/development. Since issuance of the permit, SunCor has completed a number of compliance activities required under the terms of the initial permit, and some of these activities have been approved with certain conditions that must be incorporated into the facility's permit. Additionally, SunCor has applied for, and received the first draft version of a National Pollution Discharge Elimination System (NPDES) permit from the U.S. Environmental Protection Agency (EPA). Based on discussions with SunCor, EPA, and DEQ staff, the buffer zones to surface water contained in the reuse permit need to be revised to provide a cohesive interface with the terms of the NPDES permit.

3. SITE AND PROCESS DESCRIPTIONS

The site and treatment processes discussed in the staff analysis for SunCor's initial permit have not changed since that time. For complete discussions regarding these items, refer to the staff analysis for the draft version of permit LA-000211-01, dated May 30, 2007.

Although construction of the wastewater treatment plant is now complete, no wastewater reuse has occurred onsite, as the subdivision has only recently begun selling lots and building residential homes. It is anticipated that it will take additional time to realize substantial wastewater flowrates from the subdivision to the treatment plant, and commence full operation of the wastewater treatment and reuse systems.

4. SITE-SPECIFIC PERMIT CONDITIONS – SECTION F

4.1 Hydraulic Loading Rate Limit for Rapid Infiltration Basins

The first phase (projected as a 5-year period) of the wastewater treatment plant (WWTP) has an estimated, average daily flow capacity of 0.3 MGD. Infiltration capacity assessments provided in SunCor's permit application indicated that the location and area proposed for the rapid infiltration (RI) system would have more than enough capacity to accommodate this design flowrate, but the actual design specifications for the RI basins were not available for DEQ's review at that time. Consequently, the initial permit limited the hydraulic loading rate to the RI system to the projected, buildout design flowrate from the WWTP (i.e., 0.3 MGD).

A design report and associated construction plans for the RI basins were submitted to DEQ for review on October 30, 2007, and were subsequently approved on November 21, 2007. Although the design report indicated that the RI system would likely be able to handle loading rates greater than the design infiltration rates used to size the basin system (i.e., 0.19 MGD), this assertion has yet to be proven or tested. Consequently, the November 2007 approval letter from DEQ revised the allowable hydraulic loading rate for the basins to 0.19 MGD, reflecting the actual design basis of the basins. This change in the allowable hydraulic loading rate has been incorporated into the revised permit.

4.2 Phosphorous Limit for Wastewater Treatment System Effluent to the RI System

The initial permit for SunCor's reuse systems limited the total phosphorous concentration in effluent discharged to the RI system to 0.1 mg/L. This limit essentially reflected the underlying phosphorous reduction design parameter for the treatment facility (refer to the discussion under Section 4.1.8 of the staff analysis for the draft version of LA-000211-01), although the initial permit also recognized that interconnectivity between the RI basins and Spring Valley Creek, which eventually flows into the Boise River, could require a need for lower phosphorous levels when the Boise River TMDL was finalized. Therefore, the permit contained Compliance Activity CA-211-06, which required SunCor to "submit a proposal for managing treated effluent discharged to the RI system in light of the load allocation contained in the final TMDL for the Lower Boise River…DEQ will modify the wastewater reuse permit as needed to incorporate the proposal in a manner that will satisfy the requirements of the TMDL." Based on the nature of SunCor's proposal, the total phosphorous concentration in the permit could be changed at some future date, pending finalization of the Boise River TMDL.

On November 18, 2008, SunCor submitted a letter to DEQ requesting that the total phosphorous limit for discharges to the RI system be increased to 0.2 mg/L. The request cites a number of reasons for this proposed increase, including the slow-down in the housing market, which will lead to much lower-than-expected loading rates to the RI system during the first permit term. DEQ notes that the original basis for the 0.1 mg/L limit was SunCor's design parameter for the treatment facility, and that the limit is not directly tied to any specific environmental quality standard at the present time. DEQ also concurs with the assertion that the slowdown in the housing market will result in a much lower mass-based loading rate to the RI system during the five-year term of the permit, and further notes that the majority of the phosphorous discharged to the RI system during this period will be retained within the soil profile and is unlikely to be discharged into Spring Valley Creek. Consequently, the total phosphorous limit in the draft permit has been increased to 0.2 mg/L, per SunCor's request. It should be noted that the re-opener clause, tied to Compliance Activity CA-211-06 and directed at finalization of the Boise River TMDL, remains in the permit.

4.3 Hydraulic Management Units

SunCor's initial permit application included proposals to provide Class B effluent for landscape irrigation purposes within the Avimor development, but several issues with DEQ's buffer zoning requirements prevented inclusion of these hydraulic management units into the final permit. In late September of 2007, DEQ and SunCor reached a consensus regarding layout and acceptable buffer zone criteria for a set of typical irrigation area arrangements that could be applied to specific landscape features located throughout the development. These areas have been included within the revised permit as a single hydraulic management unit (HMU) called the Irrigation Areas, Serial Number MU-021115. Site maps delineating the specific locations of the areas that compromise this HMU, as well as typical buffer zone/layout criteria for each of these areas, are contained in Appendix 2 of the draft permit. It should be noted that the final, buildout acreages of these sites have not yet been determined; however, the acreages used for irrigation must be reported under the monitoring/reporting requirements of the revised permit, and should be contained within the annual report.

Specific permit limits for the Irrigation HMU appear in Section F, while monitoring requirements for this HMU are contained in Section G of the revised permit. These requirements generally mirror the existing requirements for the Agricultural HMUs, although no soil monitoring is currently required for the Irrigation Areas.

4.4 Buffer Zones Requirements

SunCor's initial reuse permit contains standard buffer zone requirements associated with Class B effluent reuse systems. These buffer requirements include 50 feet between irrigated areas and surface waters, and 100 feet between irrigated areas and inhabited dwellings. Two changes have been made to these buffer zoning requirements in the revised permit.

During the permitting process, SunCor representatives noted that the buffer requirement for inhabited dwellings could make it difficult to irrigate landscaping and common areas located near and among houses (i.e., brown strips of un-irrigated land could result in certain situations). DEQ acknowledged this issue, and worked directly with SunCor's consultants to establish acceptable irrigation techniques (e.g., use of low-flow sprinklers, drip lines, etc.) and landscaping/distribution line arrangements that could be used in these areas to limit the potential for public exposure and still provide adequate irrigation for landscaping needs. Plans and specifications for these areas were approved on September 22, 2007. Consequently, the revised permit contains an allowance for the setback distances and sprinkler arrangements contained in the approved specifications.

A second clarification has been made to the buffer zones specified in the reuse permit, based on the conditions contained in SunCor's draft NPDES permit from EPA. The NPDES permit has jurisdiction over, and is required for, any effluent discharged into or applied on a designated wetland, while the initial reuse permit prohibits any effluent application within 50 feet of surface waters. In certain circumstances, such as along the banks of Dry Creek, these permit restrictions can create areas where the NPDES permit does not apply (i.e., outside of the wetlands designation), while the buffer zones contained within the reuse permit do not allow for any irrigation with effluent (i.e., within 50 feet of the surface water). This effectively prevented SunCor from re-establishing riparian areas along the creeks, a key component of SunCor's reuse effort. To alleviate this issue, the 50-foot surface water buffer zone in the initial reuse permit has been replaced with a buffering requirement of 10 feet to waters of the United States, including designated wetlands. Controlled irrigation systems and/or application of best management practices (BMPs) to prevent runoff will be required to maintain the 10-foot buffer zone, since any effluent application, discharge, or runoff into any waters of the United States, including

designated wetlands, that is not in accordance with the terms of SunCor's final NPDES permit could potentially constitute a violation of the Clean Water Act, subject to enforcement action by EPA.

5. COMPLIANCE SCHEDULE FOR REQUIRED ACTIVITIES – SECTION E

Since issuance of the initial reuse permit, SunCor has fulfilled the obligations of several compliance activities required by that permit. Certain activities have several aspects that have been partially fulfilled, and specific details associated with these items are further discussed below, while other activities have been completely satisfied and removed entirely from the revised permit. Activities that are complete and have been removed from the revised permit include CA-211-03, -04, -05. and -07 of the initial permit.

5.1 Plan of Operation

SunCor's original permit required submittal of a detailed Plan of Operation (O&M Manual) at the 50% completion point of construction, and additionally requires the Plan to be updated after one year of operation, to reflect actual operating procedures. DEQ received the initial O&M Manual in April of 2008, and issued an approval letter on May 22, 2008.

The compliance activity requiring submittal of the O&M Manual (i.e., CA-211-01) has been revised to delete references to the initial submittal requirements, and now simply requires an updated O&M Manual to be submitted 60 days after one complete year of operation of the reuse facilities.

5.2 Plans and Specifications for Reuse Systems

Compliance Activity No. CA-211-02 of the initial permit required submittal of plans and specifications for the proposed reuse systems prior to application of any wastewater. This included the rapid infiltration system, common area irrigation system(s), and the slow rate land application systems. Since permit issuance, SunCor has submitted engineering plans and specifications for the rapid infiltration and irrigation systems that were approved by DEQ; consequently, this compliance activity has been revised to specific submittal of plans for the agricultural areas prior to construction and/or any wastewater application (i.e., references to the RI basins and irrigation areas have been deleted).

6. RECOMMENDATIONS

Based on review of applicable state rules, staff recommends that DEQ issue draft WRP No. LA-000211-02 for a public review and comment period. The draft permit contains effluent quality requirements for the wastewater treatment system, as well as terms and conditions required for operation of the rapid infiltration and reuse systems. Monitoring and reporting requirements to evaluate system performance and to determine permit compliance have been specified, and compliance activities recommended in the staff analysis have been incorporated into Section E of the permit.